**IT Applications Unit 3, AOS 1, Online Communities**

Complete the following, from pgs, 14-18: **Network communication standards**

**Networks are classified according to below and we will study the following:**

1. **Network Categories: LAN, WAN**
2. **Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet**
3. **Network communication standards**
4. **Network hardware and software**
5. **Transmission media**
6. **Network security**

**Network communication standards**

1. Why are network standards required?  
   Network standards are required to overcome the incompatibility problems on a network and to ensure that hardware and software components can be interrogated into any network.
2. What is a protocol?  
   A protocol is a standard that defines how two computers or devices on a network transit data. The protocol determines: Type of error being used, the data compression method, if one is being used, how the sending device will indicate that it has received a message and how the receiving device will indicate that it has received a message.
3. What is the OSI?  
   The OSI (Open Systems Interconnection) is the standard for internet connection, with 7 layers, used for making programs.

**Ethernet**

1. Describe the nature of Ethernet?  
   The Ethernet is a network standard that describes the communication over a single cable shared by all devices on the network.
2. What are frames?  
   Frames are short messages sent between nodes which contain packets of information.
3. Identify the 4 components of all Ethernet frames.  
   The destination node address, the sending address and some data. The frames also contain parity info.
4. Fig. 1-9 on p 17 lists the Ethernet type, cable type, maximum length and transfer rate for Ethernet transmissions. The College typically uses 100BaseTX, Cat 5 or10Gbase-T. What are their respective maximum lengths and transfer rates?  
   For 100BaseTX the respected length is 85m with a transfer rate of 100Mbps, while Cat 5 has a length of 85m with a transfer rate of 1 Gbps.

**TCP/IP**

1. Describe the nature of TCP/IP.   
   TCP/IP (Transmission Control Protocol/Internet Protocol) is a protocol with which the internet is based. It defines how data is carried from one part of the network to another. The Standard itself specifies the rules to construct small packets of data.
2. TCP/IP uses smaller packets than other protocols. Why is this an advantage on the internet?  
   Using smaller packets than other protocols is an advantage on the internet because there are usually more pathways from the originating device to the destination device and the packets don’t have to travel on the same path. They give many more options to the network management software to enable local balancing.

**802.11 wireless standard**

**1** What does this standard do?  
The wireless standard defines how two computers or devices can communicate via radio waves.

1. What is a Wi-Fi network?  
   The Wi-Fi network is technically called the 802.11 wireless standards which allow computers that are up to 50 metres apart to be connected without the use of wires.

3 Different wireless standards transmit at different frequencies. What is the advantage of the newer 802.11n standard?  
Advantages of using the newer 802.11n standard are that it is larger in range and faster, it can also operate at either 2.4 GHz or 5 GHz so if another Wi-Fi network is working at 2.4 GHz the 802.11n you can switch to 5 GHz to avoid any interference.